

APPLICATION FILED FEB. 8, 1915.

2 SHEETS—SHEET 1.



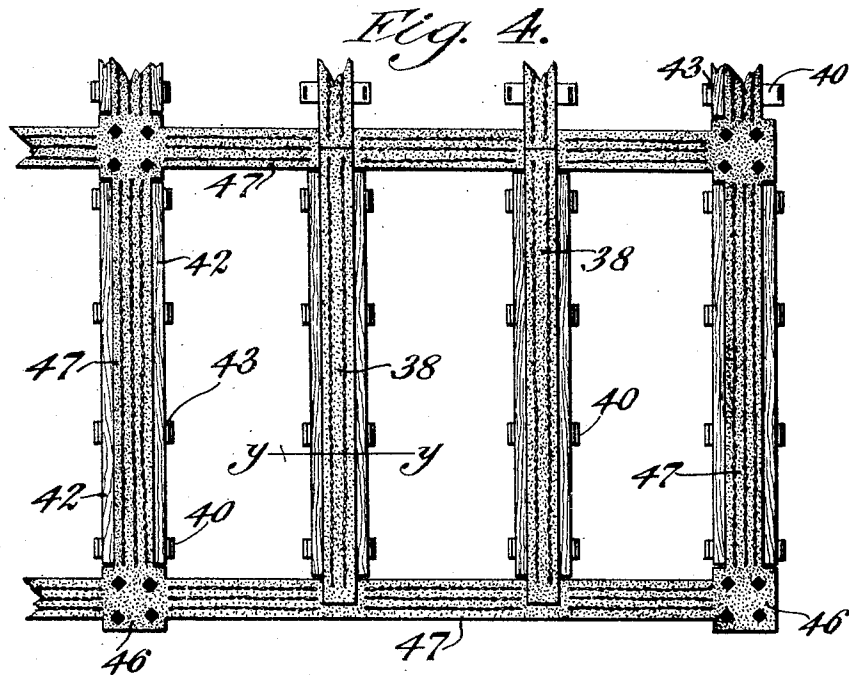
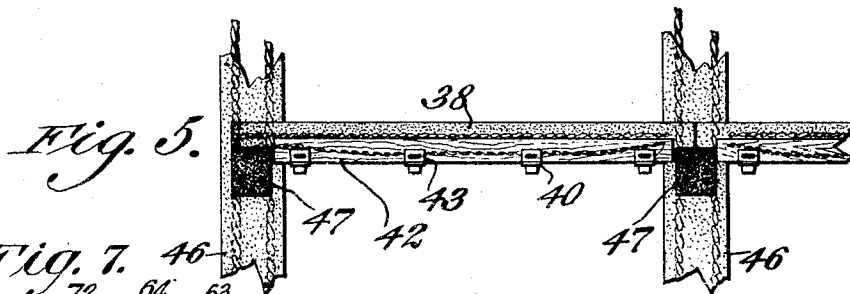
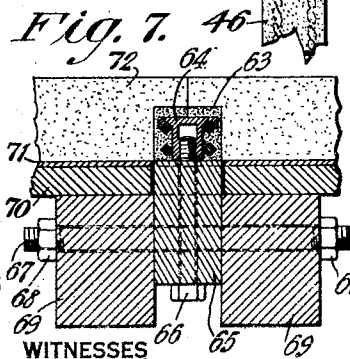
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F. J. GEIGER AND A. E. DAVIS,
 CENTERING SUPPORTING DEVICE.
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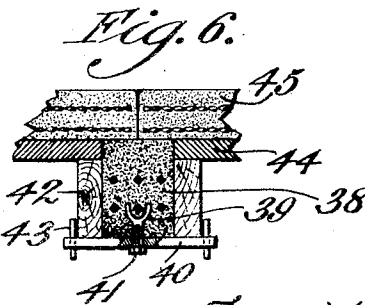
1,366,726.

Patented Jan. 25, 1921.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

FREDERICK J. GEIGER AND ANTHONY ELTON DAVIS, OF PHILADELPHIA, PENNSYLVANIA; SAID GEIGER ASSIGNOR TO SAID DAVIS.

CENTERING-SUPPORTING DEVICE.

1,366,726.

Specification of Letters Patent.

Patented Jan. 25, 1921.

Application filed February 8, 1915. Serial No. 6,719.

To all whom it may concern:

Be it known that we, FREDERICK J. GEIGER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, and ANTHONY ELTON DAVIS, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented new and useful Centering-Supporting Devices, of which the following is a specification.

In the construction of tread surfaces of reinforced concrete, such as for example, vaultlight construction, sidewalks or floors, and especially floors of concrete or reinforced concrete, it is customary, under present methods, to build up a practically complete structure of wood, which forms a false work or centering, and after the installation is completed and the concrete has set, the temporary wooden structure is removed. It is not practicable to employ uniform or standard sizes and it is therefore necessary for the carpenters to cut, fit and erect the lumber and a large part of such lumber cannot be used over again and none of it can be used in its existing form without recutting and refitting. It is also necessary to employ a large quantity of additional lumber as supports or props under the slabs, for example, in order to hold the structure securely until the concrete has dried out. By such method, a large amount of unnecessary expense and time is employed, and the progress of the work is delayed, since only one or two floors can be installed at a time.

With the above in view, it is the object of our present invention to devise a novel method of forming a reinforced concrete construction and centering supporting device which can be economically installed by unskilled labor and which can be used over and over again and which will reduce to a minimum not only the amount of material employed but also the time involved.

Our invention consists of novel means for temporarily suspending the centering or false work, so that the reinforced concrete slab, vaultlights, or any other type of reinforced concrete construction, can be expeditiously installed, and after the permanent construction is dried out, the centering can be easily, quickly and economically removed.

Our invention further consists of novel means for supporting the centering by

means of hangers carried by permanent parts of the construction.

Other novel features and advantages of our invention will more clearly hereinafter appear in the detailed description thereof.

For the purpose of illustrating our invention, we have shown forms thereof which are at present preferred by us, since the same will give in practice satisfactory and reliable results, although it is to be understood that the various instrumentalities of which our invention consists can be variously arranged and organized and that our invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents a sectional elevation of a centering embodying our invention, the floor construction being shown as completed.

Fig. 2 represents a section on line $x-x$ of Fig. 1.

Fig. 3 represents a sectional elevation of another embodiment of our invention.

Fig. 4 represents a plan view of a reinforced concrete construction embodying our invention, and in which preformed lintels are employed which carry the centering.

Fig. 5 represents a sectional elevation of a portion of Fig. 4.

Fig. 6 represents a section on line $y-y$ of Fig. 4 with slabs in place thereon.

Fig. 7 represents a sectional elevation of another embodiment of our invention.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings:—

Referring first to the embodiment seen in Figs 1 and 2, we have illustrated therein a method of forming a vault light by the employment of a centering and support therefor embodying our invention. 1 designates a beam or girder which is illustrated as consisting of a reinforced concrete construction provided with the metal bars or rods 2 and 3, which are disposed in the concrete in such a manner as to form a truss girder. 4 designates rods passing through apertures 5 and provided with nuts 6 which secure the vertically directed portion of the hangers or brackets 7 with respect to the girder 1. The brackets 7 are preferably of angular formation and provided with the lateral extensions 8, on which are seated beams or equivalent devices 9, which are prevented

from lateral movement by means of the key 10 which passes through an aperture 11 in the laterally extending portion 8 of the brackets 7. If desired, the keys 10 may be provided with apertures 12 and converging side walls 13 in order that they may be more readily inserted in place or removed therefrom.

14 designates the boards or planking on which the floor is to be constructed, and in the embodiment seen in Figs. 1 and 2, a vaultlight construction is disclosed.

15 designates a positioning plate or sheet which is ordinarily made of cardboard and provided with openings 16 above which the cups 17 are placed. 18 and 19 designate reinforcements preferably consisting of deformed metal rods or bars of any desired construction. The lenses 20 are then placed over the cups or molds 17 and the concrete or other binding material 21 employed is then placed in position to embed the reinforcements 18 and 19 and surround the lenses. After the concrete is set, the keys 10 are removed and the supporting planks or beams 9 removed from the brackets 7. The nuts 6 are then loosened and the entire centering comprising the brackets 7, beams 9 and planking 14 and the threaded rods 4 removed and such parts can then be employed for the next portion of the vault light construction or floor which is to be built up. The binding material 21 surrounds the upper portion of the beams 1, which is preferably of reduced diameter, as indicated at 22, thereby forming a shoulder 23, which determines the level of the bottom of the vault light construction. An expansion joint 24 is preferably formed, as seen in Fig. 2. 25 designates the side bearings which with the beams or girders 1 support the completed construction.

In the embodiment seen in Fig. 3, we have shown another form of our invention, in which 26 designates a reinforced concrete girder, wherein the centering construction is supported by the concrete inserts 27 which preferably rest on the lower reinforcing members 28, two of which are illustrated. 29 designates a bolt in threaded engagement with the insert 27 and passing through the hanger or bracket 30, and is provided at its lower end with laterally extending members 31, on which the beams 32 are secured by means of keys 33 passing through apertures 34 in the members 31. 35 designates the centering planks which are flush with the shoulder 36 formed by the reduced upper end of the girder 26, and said girder is provided in the present instance with three reinforcing members 37, so that a trussed girder is formed.

In the embodiment seen in Figs. 4, 5 and 6, the centering is carried by the preformed lintels 38 which are preferably constructed

of reinforced concrete and provided with inserts 39 of any desired type. 40 designates the brackets or hangers which are assembled with respect to the inserts 39 by fastening devices 41. 42 designates beams supported on the hangers 40 and secured in place by means of keys 43 which correspond in construction and function to the keys 10 which have already been described with reference to Figs. 1 and 2. 44 designates the flooring or centering upon which the concrete slabs 45 are placed, said slabs being preferably constructed of reinforced concrete, which may be preformed or formed in place. The ends of the lintels 38 may be rabbeted or reduced in thickness at the end, if desired, as will be understood by reference to Fig. 5. 46 designates the columns or uprights which are connected by the girders 47, and such columns and girders are preferably made of reinforced concrete, and the hangers 40 are secured to the girders 47 in a similar manner to that already described with respect to the lintels 38.

In the embodiment seen in Fig. 7, we have shown another form of our invention in which the bearing has the bottom face thereof substantially flush with the finished construction. 63 designates the bearing consisting of a reinforced concrete girder having a concrete insert 64 carried by the reinforcements thereof. 65 designates a beam secured to the inserts 64 by means of fastening devices 66. 67 designates rods extending laterally through the beam 65 and having their ends threaded and provided with nuts 68, whereby the centering supporting beam 69, through which the rods 67 also pass, may be rigidly secured in position with respect to the girder 63. 70 designates the flooring supported on the beam 69 and provided, if desired, with a sheet of material 71 above which a concrete floor or other construction 72 is built up. After the concrete has sufficiently set, the rods 67 will be removed, thus permitting the beam 69 and the flooring 70 to move downwardly and the member 65 may be readily removed by proper actuation of the clamping devices 66.

It will now be apparent that in all the embodiments of our invention, we have disclosed hangers which are removably carried by bearings, such as, for example, side bearings, lintels or girders, and the hangers are constructed in a novel manner, whereby the other parts of the centering may be readily assembled with respect thereto or removed therefrom.

In accordance with our invention, uniform spans can be used, and the preformed lintels and hangers installed at uniform distances. The labor expense of installing the construction where the levels are predetermined, as with the lintels and hangers and where the centering is of standard sizes, is

materially reduced relatively to the cost incurred under prior methods, and there is also a large saving in material, since the waste of material is practically eliminated.

5 It will now be understood from the foregoing that we have devised a novel method of forming a reinforced concrete construction, wherein the bearings, such as the side
10 which hangers are connected with such bearings in such a manner that they are detachable therefrom. Then a centering is supported on the hangers and the concrete or reinforced concrete construction, such as for
15 example, a vaultlight construction or a floor construction, is built up upon the centering. The concrete is then allowed to set and the centering and hangers are removed.

It will now be apparent that we have devised a novel and useful centering supporting device, which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while we have, in the present
25 instance, shown and described preferred embodiments thereof which will give in practice satisfactory and reliable results, it is to be understood that the same are susceptible of modification in various particulars, without departing from the spirit or scope of the invention or sacrificing any of its advantages.

Having thus described our invention, what we claim as new and desire to secure
35 by Letters Patent, is:—

1. Apparatus for forming a vaultlight construction, provided with spaced reinforced concrete bearing members for supporting intermediate slabs, comprising

threaded inserts molded in said bearing 40 members and opening in the under side thereof, hangers detachably connected with said bearing members by means of said inserts, temporary beams supported by said hangers, and centering carried by the beams 45 and adapted to support the slab forming material.

2. Apparatus for forming a vaultlight construction, provided with spaced reinforced concrete bearing members for sup- 50 porting intermediate slabs, comprising inserts embedded in said bearing members and opening through a wall thereof, hangers detachably connected to said bearing members by means of said inserts, temporary 55 beams supported by said hangers, means to lock said beams with respect to said hangers, and centering carried by the beams and adapted to support the slab forming material.

3. Apparatus for forming a vaultlight construction, provided with spaced reinforced concrete bearing members flush with the under side of the construction for supporting intermediate slabs, comprising 65 threaded inserts molded in said bearing members, opening in the under side thereof and flush with such under side, hangers detachably connected to said bearing members by means of said inserts, temporary beams 70 carried by said hangers, and centering carried by the beams and adapted to support the slab forming material.

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Witnesses:

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